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EXAMINER	
HAJNIK, DANIEL F	

ART UNIT	PAPER NUMBER
2671	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/615,634	BERSON ET AL.	
	Examiner	Art Unit	
	Daniel F. Hajnik	2671	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 July 2003* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: SYSTEM AND METHOD FOR PROVIDING OUT-THE-WINDOW DISPLAY FOR AN AIRCRAFT UTILIZING A VIEWPOINT TRANSFORMATION.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. Claim 24 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 15 of copending

Application No. 10/616145 in view of Guell ("FLILO (Flying Infrared Low-level Operations), 2000, herein referred to as "Guell").

2. As per claim 24, the claimed "device" comprising "a display device" and "a display processor" where the display process receives a first sensor image, transforms the first image to a viewpoint image, and outputs the first operator viewpoint.

Claim 15 of application 10/616145 claims "A display system for an aircraft" comprising "a display device", "a display processor" where the display processor receives an image from a sensor, and outputs the sensor image.

It would have been obvious to one of ordinary skill in the art to recognize that the claimed "device" in claim 24 could be implemented as "A display system for an aircraft" as taught by claim 15 of application 10/616145.

Claim 24 of the current application differs from claim 15 of application 10/616145 due to the transforming of the first image to a viewpoint image in the display processor.

Guell teaches the claimed transformation by stating "Each pilot has an independent view, which is controlled by their head position, while utilizing the same sensors that are static and fixed to the aircraft" (pg. 32, middle of 1st paragraph in 1st column) where generating a pilots independent view requires the process of transforming the image to the pilot's viewpoint.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine claim 15 of application 10/616145 with Guell. Guell teaches one advantage of the combination by stating "this allows the pilots to view their cockpit

instrumentation (while still being able to 'see-through' the aircraft skin/walls to show the outside world)" (pg. 33 bottom of 1st column).

This is a provisional obviousness-type double patenting rejection.

3. Claim 25 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/616145 in view of Guell ("FLILO (Flying Infrared Low-level Operations), 2000, herein referred to as "Guell") in further view of ("NASA's High-Speed Research Program", 6/5/2003, herein referred to as "NASA").

As per claim 25, Claim 25 of the current application differs from claim 1 of application 10/616145 due to the transforming of the first image to a viewpoint image in the display processor. Claim 25 of the current application also differs from claim 1 of application 10/616145 because the symbols can represent moving objects.

Claim 25 of the current application differs from claim 1 of application 10/616145 because claim 25 of the current application claims a "device" and claim 1 of application 10/616145 claims "a display system for a device with reduced out-the-window visibility".

It would have been obvious to one of ordinary skill in the art to recognize that the claimed "device" in claim 25 could be implemented as "a display system for a device with reduced out-the-window visibility" as taught by claim 1 of application 10/616145.

Guell teaches the claimed transformation by stating "Each pilot has an independent view, which is controlled by their head position, while utilizing the same sensors that are static and fixed to the aircraft" (pg. 32, middle of 1st paragraph in 1st

column) where generating a pilots independent view requires the process of transforming the image to the pilot's viewpoint.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine claim 1 of application 10/616145 with Guell. Guell teaches one advantage of the combination by stating "this allows the pilots to view their cockpit instrumentation (while still being able to 'see-through' the aircraft skin/walls to show the outside world)" (pg. 33 bottom of 1st column).

NASA teaches the claimed symbols representing moving objects by teaching the following feature "Object Detection: Data was gathered to help develop methods for detecting other aircraft" (third item in bulleted list under section "XVS Flight Test Series II") and by stating "pilot's ability to control and land the aircraft relying only on sensors and computer-generated images (including various symbols) on the XVS display" (3rd paragraph under the section titled "XVS Flight Test Series I").

It would have been obvious to one of ordinary skill in the art at the time of invention to combine NASA with the combinable system of claim 1 of application 10/616145 and Guell. NASA teaches one advantage of the combination by stating "In addition to providing valuable real-time sensor data for subsequent analysis, the first XVS flight test series gave researchers confidence that a future supersonic passenger jet could indeed be flown without forward facing windows in the cockpit" (3rd paragraph under section "XVS Flight Test Series I").

This is a provisional obviousness-type double patenting rejection.

4. Claim 37 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 34 of copending Application No. 10/616145. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

As per claim 37, the differences between claim 37 of the current application and claim 34 of application 10/616145 would have been obvious to one of ordinary skill in the art. The claimed differences of a "display" of claim 37 of the current application and a "flat panel display" of claim 34 of application 10/616145 are obvious differences because the flat panel display makes operation easier for the pilots and eliminates the need for pilots to use head mounted displays. The claimed limitation to "conform (the transformed image) to the size and orientation of the out-the-window display" of claim 37 of the current application is an obvious difference because the required skewing, cropping, or zooming to conform the image shape makes the display look more like a real window and gives it a more natural look. The claim differences between a "first operator" and "second operator" of claim 37 of the current application with "each crewmember" of claim 34 of application 10/616145 is obvious because a first and second operator are also crewmembers of the aircraft.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

5. Claims 39, 44, and 45 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 32

and 46 of copending Application No. 10/616145 in view of Guell ("FLILO (Flying Infrared Low-level Operations), 2000, herein referred to as "Guell").

As per claim 39, the rationale and reasons for the double patenting rejection of claim 37 is incorporated herein.

Claim 39 of the current application differs from claim 32 of application 10/616145 due to the receiving of two images from two sensors instead of one image from a sensor, and due to the difference of the first and second sensor images being fused together.

Claim 39 of the current application differs from claim 32 of application 10/616145 because the symbols of claim 39 represent the detected objects and primary flight information and the symbols of claim 32 of application 10/616145 representing information regarding the operational state of the aircraft.

It would have been obvious to one of ordinary skill in the art to recognize that symbols representing the operational state of the aircraft can include primary flight information, and information about its surrounding environment.

Guell teaches the claimed first and second sensor images and fusing them together by stating "The video images from the cameras are digitized, and electronically combined in the Electronic Imaging System (EIS) Processor to form an external view to the pilot" (pg. 33, 1st full paragraph in 1st column).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine claim 32 of application 10/616145 with Guell. Guell teaches one advantage of the combination by teaching the advantages of fusing images by stating

"The FLILO system uses a binocular, wide FOV 100% overlap 'see-through' HMD, so the pilots can visualize the external events" (pg. 33, 1st full paragraph in 1st column).

As per claims 44 and 45, the rationale and reasons for the double patenting rejection of claim 39 is incorporated herein.

Claims 44 and 45 include the limitations of using and displaying data from a terrain database. Claim 46 of Application 10/616145 includes the limitation of using and displaying data from a terrain database.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-4, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guell ("FLILO (Flying Infrared Low-level Operations), 2000, herein referred to as "Guell") in view of ("NASA's High-Speed Research Program", 6/5/2003, herein referred to as "NASA").

As per claims 1, Guell teaches the claimed "first sensor and a second sensor" on pg. 34, figure 4 where a plurality of imaging sensors are shown.

Guell teaches the claimed "fuse the images to a single viewpoint" by stating "The video images from the cameras are digitized, and electronically combined in the Electronic Imaging System (EIS) Processor to form an external view to the pilot" (pg. 33, 1st full paragraph in 1st column).

Guell teaches the claimed "transform the fused image to a first viewpoint image ... and a second viewpoint" where a cockpit is shown with titled images displayed. If a pilot and co-pilot were both sitting in the cockpit each pilot (operator) would have a different viewpoint image from their respective positions within the cockpit where the set of tiled images in constructed from fused images from multiple sensors. Guell teaches the use of having multiple pilots in the cockpit by stating "FLILO would help retain the two-man cockpit crew" (pg. 34, last of line of 1st col and first line of 2nd col). Guell further teaches this claimed limitation by stating "Each pilot has an independent view, which is controlled by their head position, while utilizing the same sensors that are static and fixed to the aircraft" (pg. 32, middle of 1st paragraph in 1st column).

Guell does not teach the claimed "detect moving objects in the images". NASA teaches this limitation by teaching the following feature "Object Detection: Data was gathered to help develop methods for detecting other aircraft" (third item in bulleted list under section "XVS Flight Test Series II").

It would have been obvious to one of ordinary skill in the art at the time of invention to combine Guell and NASA. NASA teaches the advantage of the combination by stating "In addition to providing valuable real-time sensor data for subsequent analyses, the first XVS flight test series gave researches confidence that a

future supersonic passenger jet could indeed be flown without forward facing windows in the cockpit" (3rd paragraph under the section "XVS Flight Test Series I") where the functionality of moving object detection would aid in achieving a windowless cockpit.

As per claims 2, Guell does not teach the claimed "combine first and second viewpoint images with symbols". NASA teaches this limitation by stating "pilot's ability to control and land the aircraft relying only on sensors and computer-generated images (including various symbols) on the XVS display" (3rd paragraph under the section titled "XVS Flight Test Series I").

As per claim 3, Guell does not teach the claimed "detecting moving objects ... are to configured to execute simultaneously". NASA teaches this limitation by teaching of multiple sensors (third paragraph under section "XVS Flight Test Series II") it would have been obvious to one of ordinary skill in the art to simultaneously use two processors executing the moving object detection process since there are multiple sensors attached to the aircraft and because simultaneous data of moving objects is needed to effectively navigate an aircraft.

As per claim 4, Guell teaches the claimed "transforming the fused image to the first viewpoint image are configured to execute in the first processor ... and transforming the fused image to the second viewpoint image are configured to execute in the second processor" on pg. 32, figure 1, where the plurality of imaging sensors data is inputted

into a "Electronic Imaging System (EIS) processor" and the resulting image data is then sent to the pilot for display. Guell does not explicitly or directly state of using a plurality of processors, however one of ordinary skill in the art would recognize that it would have been obvious to use a plurality of processors for real-time data processing in order to send the image data to more than one operator (different viewpoints) because it is well known in the art that multi-processor use is faster.

As per claim 12, Guell teaches the claimed "wherein the first and second sensor are video cameras" by stating "video images from the cameras are digitized, and electronically combined in the Electronic Imaging System (EIS)" (pg. 33, first full paragraph in first column).

3. Claims 5-11, and 13-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guell ("FLILO (Flying Infrared Low-level Operations), 2000, herein referred to as "Guell") in view of ("NASA's High-Speed Research Program", 6/5/2003, herein referred to as "NASA") in further view of Bernier (US Pub 2004/0169663, herein referred to as "Bernier").

As per claim 5, Guell does not teach the claimed "symbols represent the moving objects in the vicinity of the device". NASA teaches of detecting moving objects (third item in bulleted list under section "XVS Flight Test Series II"). However, given the symbols shown in figure 6A of Bernier, it would have been obvious to extend the moving

objects of NASA to be represents as symbols like the ones shown in figure 6A, because figure 6A has symbols representing objects around the aircraft and moving objects (i.e. other aircraft) are one of the most convenient objects to display when navigating an aircraft.

As per claim 6, Guell does not teach the claimed "wherein at least one of the first and second viewpoint images include environmental information for the area where the device is operating". Bernier teaches this limitation by stating "For example, the aircrafts HSI and ADI displays, altimeters, airspeed, etc. could be displayed " (paragraph [0102]). Further Bernier teaches a moving map tile (environment information) in figure 18, piece 136. Bernier teaches one advantage to combining the moving map feature of Bernier with the combinable system of Guell and NASA by stating "For instance, it may be desirable to have a moving map presented in the lower display areas, similar to having a paper map in your lap" (paragraph [0098]). This map feature makes it easy on the pilot to view the map information and prevents the pilot from having to look at a separate physical map on the pilots lap while using the aircraft display system.

As per claim 7, the rationale and reasoning for the rejection of claim 5 is incorporated herein. Guell does not teach the claimed "wherein the symbols represent weather hazards in the vicinity of the device". Bernier teaches this limitation by stating "Visual hindrances may be due to bad weather, such as fog, snow, or rain, or they may

be due to the time of day, such as night, dawn, or dusk. Further, some visual hindrances are due to the field of view limitations of the aircraft itself. Many aircraft cockpits have a field of view that is typically limited to a forward facing area that does not provide the pilot with adequate visualization to the sides and rear of the aircraft" (paragraph [0005]). Bernier teaches of providing the missing data in the pilots field of view in figure 18 with a wider view and a rear view as well, piece 134. It would have been obvious to show these weather hazards as symbols in the display system of figure 18 because the moving map, piece 136 also uses symbols to represent other hidden features in the surrounding environment such as roads.

As per claims 16, 24, and 37, the limitations of these claims closely follow those of claim 1 in terms of functionality and use, and are subject to the same reasons and same prior art for rejection. Further, Bernier teaches combining the fused image with primary flight information by stating "For example, the aircrafts HSI and ADI displays, altimeters, airspeed, etc. could be displayed on the display as a tile or fused with an image to provide an integrated view" (paragraph [0102]). It would have been obvious to one of ordinary skill in the art at the time of invention to combine Bernier with the combinable system of Guell and NASA. Bernier teaches the advantage of the combination by stating "For example, the aircrafts HSI and ADI displays, altimeters, airspeed, etc. could be displayed on the display as a tile or fused with an image to provide an integrated view allowing the pilot to view instrument readings while also viewing the environment surrounding the aircraft" (paragraph [0102]) which would help

the pilot using the combinable system of Guell and NASA in order to more easily view instrument readings while using a tiled display system based on sensors.

As per claims 8, 13, and 14, Guell teaches the claimed "to receive an enhanced image from a third sensor configured to provide an image of the out-the-window scenery in low-visibility conditions", the claimed "wherein the third sensor is a RADAR" and the claimed "wherein the third sensor is a FLIR sensor" by stating "Typical sensors used with the system are low-light video cameras, long-wave infrared sensors, and millimeter wave radar, to name a few" (paragraph [0050], where the long-wave infrared sensors perform a similar function to the FLIR).

As per claims 9 and 10, Guell does not teach the claimed "fuse the single viewpoint image with the enhanced image" and the claimed "utilize data from at least one position sensor to determine the location of the objects with respect to the device". Bernier teaches these limitations by stating "For example, given a visible and an infrared image covering similar fields of view, the images can be combined at the pixel level, where priority can be given to the infrared image based upon its pixel intensity" (paragraph [0017]).

Bernier states the advantage to combining the visible and infrared image feature with the combinable system of Guell and NASA by stating "For example, one tile image may be defined with a 30% intensity and the other a 70% intensity. The images are then summed together in this intensity percentage ratio, thereby providing the user with

the benefit of both images" (paragraph [0017]). The pilot using the imaging system of Guell and NASA would benefit from receiving a blended but effective combined image display, which provides and displays the information of two sources simultaneously to aid with accurate imaging (i.e. visible and infrared image data coming from external sensors located on the outside of the airplane).

As per claim 11, Guell does not teach the claimed "utilize data from off-board data sources regarding the objects". Bernier teaches this limitation by stating "the central processor receives the output of a synthetic vision system that generates 3D terrain and graphics from a navigation database" (paragraph [0101]). It would have been obvious to one of ordinary skill in the art to place the 3D terrain data and navigation database off-board since the aircraft may have limited capabilities of obtaining ground data through on-board ground sensors if at high altitudes.

As per claims 15 and 36, Guell does not teach the claimed "to generate a common display area associated with at least two mutually exclusive windows of information on the display device, wherein the common display can be customized by the operator to display detailed information related to the information displayed in the associated windows". Bernier teaches these limitations in figure 16 where multiple windows are shown. This common display area is customizable from alternative common display area views, which are shown in figures 17 and 18.

Bernier teaches the advantage to combine the common display area feature and the customizable display feature with the combinable system of Guell and NASA by stating "the image tiling capability also provides the ability to present picture-in-picture virtual displays distributed throughout the viewable space. For instance, it may be desirable to have a moving map presented in the lower display areas ... Another desire may be to have a rear-facing camera mapped to a tile in the upper display area, similar to a rear-view mirror ... This imagery can be further augmented with a synthetic image source, such as a head-tracked 3D terrain rendering correlated with vehicle position" (paragraph [0100]). These common display area features and the option to pick and choose one or more of these picture-in-picture displays helps the pilot of the combinable system of Guell and NASA get a stronger idea of the overall surroundings of the aircraft while its in flight.

As per claims 17 and 18, the rationale and reasons for rejection of claim 2 is incorporated herein. Guell does not teach the claimed "detecting objects in the first fused image from the first type of sensor" and does not teach the claimed "combining the first fused image with symbols representing the objects". NASA teaches these limitations by teaching the following feature "Object Detection: Data was gathered to help develop methods for detecting other aircraft" (third item in bulleted list under section "XVS Flight Test Series II"). NASA teaches of this object detection being used with the first fused image from the first type of sensor because it differentiates "Object Detection" from "Object Detection via Radar" (object detection through the second fused

image) in describing data collection methods in the bulleted list under section "XVS Flight Test Series II".

As per claim 19, Guell teaches the claimed "transforming the first operator viewpoint image and the second operator viewpoint image to conform to the out-the-window visual scene" by stating "In essence, the actual outside/world view can encompass a very large area that can go beyond what is visually allowed by the cockpit windows, providing unobstructed views in any desired direction (see figure 3)" (pg. 33, last sentence of 1st column, and top of second column).

As per claims 20-23, and claims 41-45, Guell teaches the claimed the claimed "transforming the second fused image to the first operator viewpoint and to the second operator viewpoint" by stating "Each pilot has an independent view, which is controlled by their head position, while utilizing the same sensors that are static and fixed to the aircraft structure" (pg. 32, middle of first paragraph in first column) where the each pilots independent view is an operator viewpoint.

Guell teaches the claimed "providing portions of the transformed image with data from a terrain map database" by teaching of a "Moving Map/RTIC" displayed as a portion of the transformed image in pg. 34 figure 6.

However, Guell does not teach the claimed fusing the first and second images "with an enhanced image of a portion of the out-the-window scenery from at least one of the group of a RADAR sensor and a FLIR sensor, to generate a second fused image".

Bernier states "Typical sensors used with the system are low-light video cameras, long-wave infrared sensors, and millimeter wave radar, to name a few" (paragraph [0050], where the long-wave infrared sensors perform a similar to function to the FLIR).

It would have been obvious to one of ordinary skill in the art to combine Bernier with the combinable system of Guell and NASA. Bernier teaches the advantage of the combination by stating "the system of the present invention may include two different types of sources ... the sources provide different images of the same field of view; each source having associated advantages and disadvantages. For example, one source could be a video camera ... and the other source may be an infrared sensor that provides images based on heat sensing" (paragraph [0016]). The pilot of the combinable system of Guell and NASA would benefit from image sources which provide image data in a variety of environmental conditions (i.e. low-visibility conditions) such as the infrared sources because it would help the pilot see more information as to the surroundings of the aircraft.

As per claims 25-27, Guell does not teach the claimed "display processor is further operable to combine the viewpoint image with symbols, wherein the symbols represent information regarding the operational state of the device and the moving objects detected in the images", the claimed "display processor is further operable to detect moving objects in the first sensor image", and the claimed "display processor is further operable to generate symbols representing moving objects in the sensor image and the operational state of the device".

NASA teaches of tracking objects in the section titled "XVS Flight Test Series II" and teaches the use of "pilot's ability to control and land the aircraft relying only on sensors and computer-generated images (including various symbols) on the XVS display" (3rd paragraph under the section titled "XVS Flight Test Series I"). NASA teaches the advantage of displaying symbols of moving objects used in the XVS system by stating "The envisioned eXternal Vision System (XVS) would guide pilots to an airport, warn them of other aircraft near their flight path, and provide additional visual aides for airport approaches, landings and takeoffs" (2nd paragraph in article). The reference teaches the displayed symbols (a feature of the XVS system) would warn pilots of other aircraft near their flight path.

As per claims 28-32, these claim limitations closely follow those of claims 7-10, respectively, and therefore are subject to the same reasons for rejection.

As per claims 33-35, Guell teaches the claimed "sensor is a video camera" by stating "video images from the cameras are digitized, and electronically combined in the Electronic Imaging System (EIS)" (pg. 33, first full paragraph in first column).

Guell does not teach the claimed "second sensor is a RADAR sensor", and the claimed "second sensor is a FLIR sensor". Bernier teaches this limitation by stating "Typical sensors used with the system are low-light video cameras, long-wave infrared sensors, and millimeter wave radar, to name a few" (paragraph [0050], where the long-wave infrared sensors perform a similar to function to the FLIR). Please refer to the

rejection of claims 20-23, and claims 41-45 in regards to the RADAR and FLIR sensor limitations for the motivation to combine the stated references with the claimed features.

As per claims 38 and 40, these claim limitations closely follow those of claims 17 and 19, respectively, and therefore are subject to the same reasons for rejection.

As per claim 39, the rationale and reasons of rejection for claims 2 and 18 are incorporated herein. Bernier teaches the claimed limitation of "primary flight information" by stating "For example, the aircrafts HSI and ADI displays, altimeters, airspeed, etc. could be displayed on the display as a tile or fused with an image to provide an integrated view ... while also viewing the environment surrounding the aircraft" (paragraph [0102]).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine Bernier with Guell and NASA. Bernier teaches the advantages of the combination by stating "(symbol information) could be displayed on the display as a tile or fused with an image to provide an integrated view allowing the pilot to view instrument readings while also viewing the environment surrounding the aircraft" (paragraph [0102]).

As per claims 46-47, these claim limitations closely follow those of claim 15, and therefore are subject to the same reasons for rejection.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jennings et al., and Ebersole et al. (see form 892).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel F. Hajnik whose telephone number is (571) 272-7642. The examiner can normally be reached on Mon-Fri (8:30A-5:00P).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka J. Chauhan can be reached on (571) 272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel Hajnik 8/18/05

DFH

Ulka Chauhan

ULKA J. CHAUHAN
PRIMARY EXAMINER